Session PS14 Outcome study

Effects of neurodynamic mobilization versus foam rolling treatment after delayed-onset muscle soreness

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Research question: Is neurodynamic mobilization better than a foam rolling treatment for treating muscle induced pain?

Introduction: Delayed-onset muscle soreness (DOMS) refers to the skeletal muscle pain that is experienced following eccentric exercise [1]. Exercise-induced muscle damage is known to be manifested as increased serum concentrations of creatine kinase (CK), ultrastructural disruption, inflammation and strength deficits [2]. Numerous recovery strategies have been used in an attempt to minimize the symptoms of DOMS [3]. The purpose of this study was to asses the acute effects of a single session of NM treatment and to compare with foam roller application after exercise-induced muscle damage [4].

Materials and methods: Thirty-two healthy subjects (21 males and 11 females, mean age: 22.6 ± 2.2 years) were randomly assigned into neurodynamic group (ND, $n = 16$) and foam roller group (FR, $n = 16$). Drop jumps were used to induce muscle damage (5 set × 20 rep/2 min. recovery). Maximum voluntary contraction (MIVC), muscle activation in landing jump (MALJ), 0–10 pain scale, pressure pain thresholds, hip and knee ROM and knee bend neural test were measured baseline, post 48 h preview treatment and immediately post treatment. A PhysioPlux® system was used for sEMG data collection. Electrode placement was done following the SENIAM recommendations. A band-pass filter was performed to the raw signals and RMS was calculated. A digital algometer (Wagner Pain Test®) was used for PPT and an universal goniometer for ROM measurements.

Results: MIVC, MALJ and hip and knee ROM were decreased and DOMS measured through pain increased in both groups ($p < 0.05$). After treatment, both groups showed improvements for strength and pain. Pain scale decreased significantly without differences between groups (Pain FR: −2.38 ± 1.41%; Pain ND: −2.53 ± 0.92%, $p = 0.71$). For strength measures, the FR achieved greatest changes than ND (MIVC FR: 10.8 ± 4.65%; MIVC ND: 4.80 ± 4.33%; $p = 0.03$).

Discussion: The data indicated that the both treatments were effectives to improve pain and strength, showing EMG measures greater change with FR treatment.

References

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http://dx.doi.org/10.1016/j.gaitpost.2015.06.127